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UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Date of Report (Date of Earliest Event Reported):

August 29, 2014

Mast Therapeutics, Inc.

(Exact name of registrant as specified in its charter)

Delaware

001-32157

84-1318182

(State or other jurisdiction  
of incorporation)

(Commission  
File Number)

(I.R.S. Employer  
Identification No.)

12390 El Camino Real, Suite 150, San Diego,  
California

92130

(Address of principal executive offices)

(Zip Code)

Registrant's telephone number, including area code:

858-552-0866

Not Applicable

Former name or former address, if changed since last report

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
  - Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
  - Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
  - Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))
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**Item 5.02 Departure of Directors or Certain Officers; Election of Directors; Appointment of Certain Officers; Compensatory Arrangements of Certain Officers.**

On August 29, 2014, Santosh J. Veticaden, Chief Medical Officer and Senior Vice President of Mast Therapeutics, Inc. (the "Company"), notified the Company of his decision to resign for personal reasons, effective September 12, 2014. Edwin L. Parsley, D.O., the Chief Medical Officer of Aires Pharmaceuticals, Inc., a wholly-owned subsidiary of the Company, will assume Dr. Veticaden's former responsibilities as the Company's interim Chief Medical Officer. Dr. Parsley previously was with Pfizer, where he oversaw clinical trials for Revatio® (sildenafil). He is a practicing physician and certified by the American Board of Internal Medicine in internal medicine, pulmonary disease, critical care medicine, and sleep medicine. Dr. Parsley has been actively engaged with the Company since it acquired Aires in February 2014.

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**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Mast Therapeutics, Inc.

*September 2, 2014*

By: */s/ Patrick L. Keran*

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*Name: Patrick L. Keran*

*Title: President and Chief Operating Officer*